



Citation for published version:

Zalewska, A 2014, 'Gentlemen do not talk about money: remuneration dispersion and firm performance relationship on British boards', *Journal of Empirical Finance*, vol. 27, pp. 40-57.
<https://doi.org/10.1016/j.jempfin.2013.09.001>

DOI:

[10.1016/j.jempfin.2013.09.001](https://doi.org/10.1016/j.jempfin.2013.09.001)

Publication date:

2014

Document Version

Peer reviewed version

[Link to publication](#)

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Published version available via: <http://dx.doi.org/10.1016/j.jempfin.2013.09.001>

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Gentlemen do not talk about money:

Remuneration dispersion and firm performance relationship on British boards

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Published in the Journal of Empirical Finance 27 (2014), 40-57

July 2013

Abstract

Using a sample of 781 U.K. firms over the period 2000-2008 we study the relationship between remuneration dispersion at executive board level and firm performance. We find that this relationship is sensitive to nationality composition of the executive boards. In contrast with findings on American data, British companies are characterized by a negative dispersion-performance relationship, i.e., the greater the dispersion is, the worse firm performance is, however, boards with American CEOs or at least 30% of American nationality non-CEO executives are characterized by a positive dispersion-performance relationship. The results are robust when controlling for various firm, board and CEO characteristics, including cross-listing on U.S. exchanges and having sales in the U.S. Implications for executive remuneration reforms and board diversity are discussed.

JEL classification: G35, J33, L29

Key words: Executive compensation, board diversity, incentive pay, firm performance

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1. Introduction

The literature on executive remuneration incentives is dominated by studies of CEO remuneration. Even when broader executive board remuneration is examined it is common to focus on the difference between CEO remuneration and that of specific board members. This focus on remuneration of CEOs is congruent with perceiving a CEO as a dominant personality who bears the power and responsibility for firm performance. However, the corporate scandals of the last decade and consequent corporate governance reforms undertaken by numerous regulatory bodies stress the importance of internally strong and cooperative boards which provide a balanced partnership with a CEO. Very little, however, is known about the effectiveness of remuneration practices at board level, especially outside the U.S. This paper steps aside from the tournament literature and, using U.K. data, looks at boards as teams rather than competitors for a CEO position. Using a non-U.S. sample opens the analysis of the dispersion-performance relationship to new questions. In particular, we are concerned with whether the U.S. boards' characteristics transfer to U.K. boards, and how this is affected by the presence of American nationality executive directors.

In recent years the role and responsibility of boards has been more hotly discussed than ever before. Numerous corporate scandals have highlighted the importance of strong, well-informed and independent boards that fulfill their governing, advisory and monitoring roles (e.g., Coffee, 2002; Healy and Palepu, 2003; Melis, 2005; de Jong et al., 2007). While considerable attention has been paid to introducing structural changes which lead to the reduction of CEOs' power and dominance (e.g., separation of CEO and Chair position), the empowerment of non-executive directors (e.g., creation of non-executive Chairs, independent directors), etc., relatively little attention is paid to financial incentives at the board level. Indeed, it is a CEO's remuneration that initiates political debate² and shareholder protests³. It is common in the academic literature to treat boards as if they were waiting rooms full of executives determined to be the next CEO, e.g., it is common to test whether there are signs of

² E.g., see "Labour urges 'responsible capitalism' in executive pay", David Batty, *The Guardian*, 7 January 2012; "We'll rein in executive pay, vows David Cameron", Tom Ross, *The Telegraph*, 7 January 2012; "Ed Miliband has been pick-pocketed by David Cameron on executive pay. Has he noticed yet?" Dan Hodges, *The Telegraph*, 9 January 2012.

³ E.g., see "Shareholder revolt set to continue with investors ready to vote against pay deals at William Hill, Unilever and WPP", *This is Money Reporter*, May 6, 2012; "Investors rebuke Citi board over pay", T Braithwaite and D. McCrum, *Financial Times*, April 18, 2012. Also see Kuhnen and Niessen (2012).

executive tournaments and how they impact on performance (Main et al., 1993; Ang et al., 1998; Eriksson, 1999; Bognanno, 2001; Conyon and Sadler, 2001; Conyon et al. 2001, Kale et al., 2009; Rankin and Sayre, 2011; Burns et al., 2012). Lee et al. (2008) is the only study we are aware of that explicitly studies the relationship between remuneration dispersion at a board level and firm performance. Using U.S. data Lee et al. (2008) find that the bigger dispersion is, the better firm performance is. The tournament literature finds that the bigger pay differential between a CEO and other executive board members is, then the better firm performance is. Taking this together it raises the question of whether the positive relationship between remuneration dispersion and firm performance is a universal characteristic of boards or not.

For instance, if boards are not strongly hierarchical and the division of work and responsibilities tends to be balanced, then it could be that large remuneration differences among board members, hence high remuneration dispersion, impacts negatively on the team spirit and motivation. Consequently, such boards could be characterized by a negative dispersion-performance relationship. This would be consistent with theoretical studies (Akerlof and Yellen, 1988; Milgrom and Roberts, 1988; Lazear, 1989; Akerlof and Yellen, 1990) and empirical research on cooperation in general economic situations (Pfeffer and Langton, 1993; Drago and Garvey, 1998; Lindquist, 2010; van den Assem et al., 2012).

Understanding the dispersion-performance relationship at board level is important for several reasons. First, if corporate governance reforms are to succeed it is vital to fully understand board dynamics. There is no point to work hard to improve the board architecture if remuneration practices hamper, and even prevent, cooperation among board members. Second, if the dispersion-performance relationship is not universally positive, then the answer to the question of how to determine the remuneration structure that should be in place is even more complicated than currently acknowledged. If reward systems and practices are determined by cultural attitudes and values, as Pennings (1993) argues, it may be that it is fruitless to search for universal solutions, and studies of remuneration incentives should be done at a cultural, or at least country, level. Third, if the dispersion-performance relationship is not universally positive, the issue of how to remunerate culturally diverse boards emerges. This issue is particularly important in the modern era of business globalization. Indeed, given high labor mobility, companies do not have to expand businesses to foreign markets to find themselves facing issues of how to structure the remuneration of multicultural boards.

This paper studies the dispersion-performance relationship using a sample of 781 British companies listed on the London Stock Exchange in the period 2000-2008 to assess to what extent the American findings of the positive relationship are universal and robust. U.K. boards provide particularly interesting material for such an investigation. On one hand, the U.S. and the U.K. are commonly perceived as the core of the Anglo-Saxon corporate governance system, and therefore, one may expect that U.S. and U.K. boards are characterized by similar features. On the other hand, the countries are quite different culturally,⁴ and a deeper analysis of their board structures and practices indicates substantial differences in their corporate architecture, with the U.K. being less 'linear' and less CEO-centered (e.g., Toms and Wright, 2005; Aguilera et al., 2006). Consequently, one could conjecture that British boards may not be characterized by a positive dispersion-performance relationship, i.e., the American findings do not carry over to the British sample. If this is the case, however, one could also ask what the dispersion-performance relationship is when American executives sit on British boards. Given that the past literature documents that American boards are characterized by a positive dispersion-performance relationship we test whether the presence of American executives on British boards is still associated with a positive dispersion-performance relationship. If yes, this would support Newman and Nollen's (1996) argument that practices that are aligned with national culture lead to better performance.

Controlling for various firm and board characteristics we find strong evidence of a negative dispersion-performance relationship on British boards. This result is further strengthened when the analysis is restricted to companies which do not have any overseas executives. We also find that the presence of American executives is associated with the change of the sign of the dispersion-performance relationship. In particular, we find that boards which have at least 30% of executives of American nationality are characterized by the positive dispersion-performance relationship.

This research contributes to the existing literature on the link between executive remuneration and performance, and on board diversification issues in several ways. First, it enriches our understanding of the relationship between pay differentials within an executive board and firm performance. This is the first study that documents that the

⁴ For instance, Geert Hofstede™ Cultural Dimensions show that the Power Distance Index, that is the extent to which the less powerful members of organizations and institutions accept and expect that power is distributed unequally, puts the UK on the same level as Germany, with the value of the index at 35, while the US scores 40.

relationship may be negative, and that it is related to cultural characteristics of executives (in our case – nationality) rather than to the country of origin of the company. Second, it adds to our understanding of potential costs and benefits of board diversity. The fact that the effectiveness of remuneration incentives may be strongly affected by individuals' culturally shaped attitudes towards how they and others are financially rewarded adds an additional complication to the, already complex, issue of structuring executive boards incentives.

The fact that remuneration dispersion may impact negatively on firm performance has strong implications for the on-going debate on how to reform executive remuneration so that it provides the right incentives. It highlights the importance of treating remuneration incentives as a board-level, and not a CEO-level, issue. Even if an optimal structure of CEO remuneration can be found and implemented, it does not guarantee that it will result in superior firm performance as it may antagonize the other board members. As the reforms of corporate governance head towards empowering boards and increasing their responsibility for companies' operations, strategy, performance, etc., the reforms of restructuring executive remuneration must not be narrowed down to CEO's compensation.

The rest of the paper is organized as follows. Section 2 provides a brief literature review and structures hypotheses. Section 3 provides description of the data, defines variables and discusses estimation issues. Section 4 presents the results of the regression analysis and Section 5 closes with conclusions.

2. Literature Review and Hypotheses

2.1. Remuneration Incentives and Firm Performance

Group management is a complex task and executive boards are no exception. The case of boards is additionally complicated by the fact that boards' behavior is potentially burdened with agency problems, i.e., boards as the minority acting on behalf of a big and often dispersed group of shareholders may have their own objectives to pursue. Therefore, the relationship between executive compensation and firm performance can be perceived as a mechanism to reduce agency problems (e.g., Holmström, 1979) or, alternatively it is the result of agency problems (Bebchuk and

Fried, 2003, 2004). Numerous papers have been written on the subject of how to remunerate CEOs (e.g., Core et al., 2003; Jensen et al., 2004; Bebchuk and Weisbach, 2010 for surveys) while relatively less attention is paid to structuring remuneration of non-CEO executives (see Gerhart et al., 2009 for a review). The debate on executive remuneration is frequently built on the theoretical work of Mahoney (1978) and Lazear and Rosen (1981), and concentrates on testing whether tournaments and rivalry introduced through big remuneration differences between a CEO and non-CEO executives is associated with better firm performance. While there is broad evidence that in many economic settings cooperation and collaboration are important (Bloom, 1999; Pfeffer and Langton, 1993; Apesteguia and Palacios-Huerta, 2010; Lindquist, 2010), the tournament hypothesis, designed on the ‘winner takes it all’ attitude of sport competitions (Ehrenberg and Bognanno, 1990; Becker and Huselid, 1992), has found support in numerous studies using executive boards’ data. In line with the tournament argument it has been found that big remuneration differences between a CEO and his/her potential within-the-board replacements (vice-presidents, the three or five best paid executives, etc.) are positively associated with firm performance (Main et al., 1993; Bognanno, 2001; Henderson and Fredrickson, 2001; DeVaro, 2006a, 2006b; Kale et al., 2009; Rankin and Sayre, 2011). Moreover, Lee et al. (2008) show that stepping aside from board hierarchies preserves the result, i.e., they find that large remuneration dispersion within a board also positively impacts on performance. Admittedly, all these studies are based on U.S. data and are in agreement with the fact that traditionally U.S. boards are highly hierarchical and centered around a powerful CEO.

However, given that the U.S. model and culture of corporate governance is not universal, it would be premature to conclude that the positive dispersion-performance relationship has a universal, i.e., cross-national or cross-cultural, character.⁵ There seem to exist substantial variations among nations in their sensitivity to social inequality, individualism, and fairness (Hofstede, 1980, 1983; House et al., 2004; Tosi and Greckhamer 2004). Moreover, as cultural differences may have played a significant role in determining financial market structures, organizational structures and governance (Kerr and Slocum 2005, Kwock and Tadesse 2006), they may also have impacted on the perception of leadership roles and responsibilities (Pillai et. al. 1999) and creation of remuneration practices (Schuler and Rogovski 1998). Consequently, it can be expected

⁵ We step aside from a debate on cultural differences within one country and across countries. For simplicity of argument we treat countries as culturally homogeneous.

that there may be many distinct remuneration practices and that the differences among them may be big enough for remuneration practices that work well in one country to fail to deliver good results in another. Given that the acceptance of hierarchies is associated with acceptance of remuneration disparities (e.g., Tosi and Greckhamer 2004, Kerr and Slocum 2005) an absence of a positive dispersion-performance relationship could arise in countries with governance structures and business cultures less hierarchical and less CEO dominated than the U.S. one.

The non-US studies, and there is only a handful of them, focus on direct comparison of remuneration of CEOs with that of selected executive directors, i.e., they concentrate on testing for tournament (Ang et al., 1998; Eriksson 1999; Conyon and Sadler, 2001; Conyon et al., 2001). None of these papers analyses the link between board dispersion and firm performance, which is of direct relevance for this research, but even so, these studies indicate that the American findings may not have a universal character. In brief, these studies have only a “varying degree of success” in confirming the American findings of the positive association of tournaments on performance. For instance, although it is not altogether clear that the approach of Conyon et al. (2001) is informative about a wide range of UK companies (they use one or two year snapshots of companies from the FTSE 100 index that have divisional directors, do not control for endogeneity, etc.), the fact that the positive relationship between the remuneration differences and performance is not uniformly found for the sample of the biggest companies suggests that the U.K. attitudes towards remuneration dispersion may differ from that documented for the U.S. companies.

2.2 U.S. versus U.K. boards

Given that the U.S. and the U.K. are perceived as the core of the Anglo-Saxon corporate governance system it is more common to focus on their similarities (e.g., unitary boards) rather than differences (e.g., shareholder rights, separation of CEO and Chair, protection against hostile takeovers). However, there are substantial differences in the architecture of the American and of the British boards, and in particular, in how power is shared between a CEO and a board.

It is traditional in the U.S. that CEOs chair their boards and a situation where this is not the case is treated as temporary and “some sort of probation” (Kale et al.,

2009). Morgan et al. (2011) document that U.S. mutual funds support only 34% of shareholder proposals calling for separation of CEO and Board Chairman positions although their support of shareholders' proposals to declassify boards is 90%.⁶ The tradition to have CEOs chairing their boards is so well rooted, that the action of the American Federation of State, County and Municipal Employees (AFSCME) pension fund to separate the position of CEO and chairman in nine leading financial institutions and in some large non-financial companies undertaken in 2012 faced strong resistance. After many months of battling none of the companies targeted has separated the CEO and chairman positions. Only Goldman Sachs has made conciliatory changes, agreeing to appoint an independent lead director⁷, and even here the agreement has aroused significant discontent.⁸ Interestingly, all this has been happening after, in 2010, Congress passed three proposals calling for separation of the roles of the CEO and the Board Chair.

In Britain, on the other hand, CEOs are not so powerful (Higgs, 2003; Aguilera, 2005; Aguilera et al., 2006). One of the main recommendations of the Cadbury's Report (1992) was a clear division of responsibilities on British boards, i.e., that the position of chairman of the board is separated from that of CEO, or that there is a strong independent element on the board, e.g., if a CEO is a chair there should be a senior non-executive director to whom non-executive directors may report their concerns. Over the last decade there have been three high profile cases combining the positions of CEO and chair of the board.⁹ On each occasion there was front page coverage in the business press focused on the widespread concern and significant negative response to the actions.¹⁰ In the case of Stuart Rose, the CEO of Marks & Spencer, the combination of roles was temporary (with an explicit maximum term) yet over 20% of investors still abstained or voted against his election as Executive Chairman. Indeed, resistance to separate the CEO and Chair is not only perceived as bad corporate governance practice but as a clear sign of "Americanization". "It is hard to see Carnival as anything other than American company" was a summary Carnival (the cruise line and a FTSE 100

⁶ This aversion towards having a CEO who does not chair the board seems to be supported by better performance of firms that have CEOs as Chairs than those that have separated the positions, e.g., Brickley et al. (1997), Bloom and Van Reenen (2010), Dey et al. (2011), Byrd et al. (2012) to mention just a few.

⁷ "Goldman's deal with union: something for someone", Router, Boston/New York, 28 March 2012

⁸ "Union disapproves of Goldman's choice for lead director", The Wall Street Journal, 4 April 2012

⁹ E.g., Sir Stuart Rose of Marks and Spencer, Michael Grade of ITV and Graham Mackay of SAB Miller.

¹⁰ "What's wrong with being executive chairman?", The Guardian, 12 March 2008; "ITV weighs cost of executive combination", The Financial Times, London, 30 September 2009; "SAB Miller Chief Graham Mackay to become Chairman", The Telegraph, 23 April 2012

blue-chip company) received in response to its persistence to have the same person, Micky Arison, holding both the CEO and the Chair posts.¹¹ Higgs (2003) reports that only 19% of U.S. firms have CEOs who do not chair their boards, whereas 90% of U.K. companies have separate CEOs and chairs.¹²

A difference in how the Americans and the British see the top executives is even expressed in such a supposedly trivial thing as how a CEO is referred to. The U.S. terminology of CEO (Chief Executive Officer) has an element of power and military whereas the traditional U.K. nomenclature of Managing Director indicates a less dominant and less power-based position. While in the U.S. “CEO control and the authoritarianism it breeds are probably the only way to run an enterprise successfully” (Greenspan, cited in the Financial Times, 13 March 2008), the U.K. attitudes are quite opposite. A ‘one man show’ style of U.S. does not seem to suit U.K. boards which prefer quiet diplomacy, effectiveness and tradition for succession (Black and Coffee, 1994; Holland, 1998). Moreover, Toms and Wright (2005) argue that British managers “were reluctant to adopt professional managerial hierarchies” so characteristic for American boards. Allyson Stewart-Allen, an international marketing and strategy consultant and author of the book “Working with Americans” (Stewart-Allen and Denslow, 2002), stresses that British businessmen are “less procedural”, not so “linear” in pursuing their objectives, and find the “impersonal element (of the way Americans do business) slightly uncomfortable and not necessary very rewarding”. She also stresses that “for the British executives, success doesn't always look like money and cash in the bank in the way like it does for the American. Success in the UK looks like knowledge, looks like network of contacts, look(s) like numbers of years you work for a company”, and that in “the US where it's actually more about my individual performance and looking after me, whereas in the UK it's about looking after my company, and team as well as me”.¹³

The hierarchic structure of U.S. boards is also expressed in a clear separation of various “tiers” of executives, e.g., vice-president. In contrast, this practice is rare on British boards, and indeed, it is quite common that annual reports do not specify

¹¹“British governance on itinerary for Carnival investors?”, Financial Times, London, 13 March 2008.

¹² After in 2010 Congress introduced three proposals to limit CEO duality, the proportion of U.S. firms with CEOs not chairing their boards increased to about 50%. This is still far below the U.K. statistics and occurred after our sample ends.

¹³ Allyson Stewart-Allen, “Working with the British”, <http://www.videojug.com/interview/working-with-the-british>

positions of individual executive members at all. Instead, executive directors are simply referred to as “executives”.

Therefore, given that U.K. corporate boards’ mechanisms and structures are less individualistic, it may be expected that these attitudes will be reflected in how within-board remuneration dispersion motivates board members. Given that large remuneration gaps may be a sign of hierarchy, dominance and inflated self-importance (Hambrick and D’Aveni, 1992), and that “the reward system (...) is an unequivocal statement of the corporation’s values and beliefs” (Kerr and Slocum, 2005), large remuneration dispersion may not have the same stimulation effect on British executives as it has on their American colleagues. Indeed, we hypothesize that British boards may be more effective when pay dispersion is low, i.e., we predict a negative dispersion-performance relationship.

This hypothesis is consistent with numerous theoretical arguments stressing the importance and benefits of group unity and integrity, and, in particular, that remuneration dispersion negatively impacts on the evolution of group cohesion and integration, as well as motivation to exert effort and work hard (Mohoney, 1979; Milgrom and Roberts, 1988; Lazear, 1989; Akerlof and Yellen, 1990; Drago and Garvey, 1998). Also theories of social fairness argue against high remuneration disparities, following the argument that agents are sensitive to how much they are rewarded as individuals, as well as how their remuneration compares against remuneration of others (e.g., Adams, 1965; Crosby, 1984).

However, given that the positive relationship between firm performance and remuneration disparities among individual executive board members and within a board are documented for U.S. boards (e.g., Main et al., 1993; Bognanno, 2001; Lee et al., 2008; Kale et al., 2009; Rankin and Sayre, 2011), and “...financial performance is higher when management practices in the work unit are congruent with national culture” (Newman and Nollen, 1996), a natural question arises of what is the dispersion-performance relationship when American executives sit on British boards? Adler and Graham (1989) show that among the studied groups (i.e., American, Canadian and Japanese businessmen) the Americans were “the most obstinate” in the sense that “their behavior remained consistent across situations”. In light of this and of the past literature documenting the positive dispersion-performance relationship on U.S. boards, one can expect that large, rather than small, remuneration dispersion creates positive incentives for Americans, and the fact that they work on British boards should not reverse this

relationship. Therefore, even if the negative dispersion-performance relationship characterizes British boards, the presence of American executives can be expected to be associated with the positive dispersion-performance relationship.¹⁴

American values and, in particular, the positive dispersion-performance relationship may characterize other nations and business cultures. However, the sample we have does not allow testing for the sign of the dispersion-performance relationship for other nationalities. There is simply not enough representation of other nationalities other than U.S. on British boards to control for them without running into the problem of individual specific effects.

3. Data and Methodology

The data have been collected from numerous sources. The information about characteristics of individual members of boards (nationality, tenure, age, current position, etc.) as well as annual remuneration have been collected from BoardEx. However, given that BoardEx's data have numerous missing observations (e.g, nationality), individuals were cross-searched on www.semantric.com, www.linkedin.com and Bloomberg Businessweek (www.investing.businessweek.com) in order to fill in the gaps.

From Datastream/Worldscope we collected the accounting and stock market data necessary to calculate performance measures and control for firm characteristics. Thomson One Banker was the source of information on insider share ownership. Information on cross-listing in the U.S. was collected from annual reports of the U.S. stock exchanges, BNY Mellon (www.adrbnymellon.com) and via a general web search. Information on whether companies had sales in the U.S. was collected from www.hemscott.com and annual company reports.

The sample consists of 781 U.K. companies publicly traded on the London Stock Exchange over the period 2000-2008. These are non-financial and non-utility firms for which there is information for at least two years, for at least three executive

¹⁴ We use the presence of Americans as an indicator of the existence of processes which are American specific. The data at hand do not allow for an in-depth analysis of whether it is the presence of large remuneration dispersion that attracts American executives or whether, once Americans join the board, the dispersion increases as a result of the company adopting American ways of doing business. However, Section 4.3 provides some basic analysis which indicate that it is the latter.

board members and the company has a CEO (i.e., it was not in process of appointing a new leader). 217 out of these 781 companies (i.e., 28%) have at least one foreign executive board member. Among those, 106 companies (14%) have at least one American executive of which 37 have an American CEO. There also are 142 companies (18%) with at least one a non-American overseas executive. Of these, Canadians and Irish are the most numerous groups among CEOs. There are eight of each of them. In total, there are 70 non-American overseas CEOs spread across 22 nationalities.

In the analysis we use the whole sample of 781 companies, a sub-sample of 564 companies where all board members are British (later referred to as the All-British-Boards sample), as well as the sample of 217 companies with overseas executives (later referred to as the Foreigners-on-Boards sample). For each of the samples a series of dependent and independent variables are defined below. The summary statistics of these variables are presented in Table 1.

***** insert Table 1 here *****

3.1. Dependent Variables

Performance of companies is measured by shareholder returns (Returns) and return on capital employed (ROCE). We use the shareholder returns because boards are contractually bound to act on behalf of shareholders, and therefore to maximize the shareholder value. ROCE, on the other hand, as a financial ratio “act(s) as a potential signal of managerial effort” (Conyon, 2000) and allows comparison of our results with the earlier U.K. studies (Conyon and Sadler, 2001). It is also worth mentioning that ROCE is the measure used in the U.K. by the Competition Commission to assess firm performance.¹⁵

Using ROCE is straightforward, because the timing of its reporting is consistent with the timing of the other corporate governance and remuneration data. However, because the month of publication of the reports differ across companies, i.e., some companies publish their reports in January, some in February, etc., the corresponding

¹⁵ We have also used return on assets (ROA) and return on equity (ROE). Given that ROCE, ROA, and ROE are highly correlated (above 70%), the results obtained for ROA and ROE are consistent with these presented in the paper. To save space we do not report them.

stock market performance must be calculated to match the period covered by the financial performance and corporate governance data. We calculate Returns as the annual log-return of dividend adjusted share prices for a year ending a month before the annual report is published, i.e., if an annual report is published in March 2007, the corresponding stock market performance is calculated between March 2006 and February 2007. We believe that in this way we closely match the period the accounting data are calculated for (given that preparation of the final report takes some time).

Table 1 shows that the companies with overseas executives are slightly more profitable than the companies without overseas executives. The average ROCE for the former group is 7.82%, while for the latter one it is 5.67%. There is practically no difference in the mean stock market returns between the two sub-samples, although the range of stock market returns of the All-British-Boards sample is wider than it is in the case of the Foreigners-on-Boards sample.

3.2. Independent Variables

Dispersion

The tournament literature uses the difference in remuneration between a CEO and some selected executive directors (e.g., Eriksson 1999; Bognano 2001; DeVaro, 2006, Kale et. al., 2009) to assess the impact of pay differences on firm performance. This approach does not help to address board-level remuneration issues even if it is suitable to assess monetary gains from promotions. This is because it explicitly focuses on a CEO and ignores some, potentially important from the perspective of board dynamics, executives.

To analyze the impact of within-board pay differentials a measure that captures dispersion across all board members is needed. Standard deviation of remuneration seems an appropriate measure but it is sensitive to the size of remuneration included in the calculations. The size of remuneration may correlate with the firm size, and hence, with board size and other board and firm characteristics, which will cause econometric issues and create difficulties in interpretation of the results. Normalization of the standard deviation of remuneration within the board by the mean remuneration avoids the problem. Therefore, we define Dispersion as the standard deviation of all executive remunerations divided by the mean executive remuneration (see also Lee et al., 2008). This measure is more representative for boards as a whole and more informative than a

comparison of CEOs' remuneration against remuneration of those potentially 'in-line' for promotion, especially since those potentially contesting for an internal promotion are unknown. It also side-steps hierarchies. For example, in U.S. based studies it is relatively straightforward to layer executives, because it is clear who, e.g., vice-presidents are. The U.K. boards do not have such hierarchies, and introducing it by focusing on artificially created groups of importance may not reflect the true allocation of power and hence bias the results.¹⁶

The normalized standard deviation is also insensitive to proportionate changes in remuneration. If a CEO and some executive director are rewarded, say, with a 50% increase in remuneration, then the difference between their pays would increase if initially the CEO was paid more than the executive used for comparison. However, the proportionate increases in pay have no impact on dispersion calculated as the normalized standard deviation of the CEO's and the executive's compensation. Using the 'normalized' dispersion also has the benefit that it is congruent with the notion that the relativity of earnings not their absolute levels are more detrimental for the development of unfair treatment feelings (Easterlin, 1995; Wade et al. 2006).¹⁷

There is one more issue that requires addressing. It has been widely acknowledged in the literature that studying the impact of remuneration on performance suffers from reverse causality. Good performance may affect remuneration via two channels: (i) via financial rewards (e.g., bonuses being granted if a company performs well) and/or (ii) via performance-linked incentives (i.e., good stock market performance increases value of options and shares). Studies that use the nominal difference between remuneration of a CEO and of some selected executives are also exposed to the reverse causality issue because it is common for CEOs' remuneration to contain a higher proportion of equity-linked compensation than remuneration of the other executive board members. Moreover, remuneration practices that favor a CEO when bonuses are being awarded, i.e., when CEOs 'scoop the cream', may also increase dispersion when a CEO is compared against his/her executive peers. Consequently, if dispersion is measured in relation to a CEO, i.e., as the difference between his/her earnings and of some of his/her executive colleagues, then reverse causality is an issue.

¹⁶ For instant, Conyon and Sadler (2001) use divisional directors to proxy for the first tier executives on U.K. boards. This reduces an analysis to a small sample of companies who have divisional directors.

¹⁷ Note that if a board consisted of a CEO and another director, and both of them received 50% increase in pay because of good performance the difference of the remunerations would increase if the CEO was paid more than the other director. However, the normalised standard deviation of their remunerations would remain unchanged.

Reverse causality is however not a problem in our case because the way dispersion is calculated (i.e., across all executives and as the normalized standard deviation) dilutes the effects of automatic increases of remuneration disparities, and also because a negative dispersion-performance relationship is expected, and later confirmed by the evidence. For good performance to cause decreased dispersion rather than the other way round (i.e., for there to be a reverse causality problem), good performance would have to result in the remuneration of less well paid executives increasing proportionately more than the remuneration of better paid executives. This is, however, counterintuitive, because it is unlikely that the proportion of equity linked remuneration of the better paid executives is lower than of those paid less.

To gain a good understanding of the impact of dispersion on performance, in addition to $\text{Dispersion}_{\text{total-pay}}$, defined as the standard deviation of total remuneration of executive board members normalized by the mean executive total remuneration, $\text{Dispersion}_{\text{salary}}$, defined as the standard deviation of salaries of executive board members normalized by the mean executive salary is used.¹⁸ Given that contracts that define the size of salary tend not to change on an annual basis and that salary is that component of remuneration which does not automatically change with performance, $\text{Dispersion}_{\text{salary}}$ is more a board characteristic, or a proxy for remuneration practices, rather than a volatile measure driven by stock market fluctuations. In addition, one could argue that differences in salaries may be particularly informative about the role remuneration differentials play in motivating executives. This is because stronger feelings about unfairness of pay may result from differences in salaries as the size of this part of compensation tends not to be effort driven. Finally, the fact that 25% of CEOs in our sample do not have equity linked compensation makes $\text{Dispersion}_{\text{salary}}$ a relevant measure in assessing the effectiveness of remuneration practices on U.K. boards. Finally, to make absolutely sure that our results are not affected by reverse causality we take a lag of Dispersion.

To close the discussion we calculate correlations between the lagged dispersion measures and the performance measures, and between the dispersion measures and the lagged performance measures.¹⁹ All the correlations between lagged Dispersions and the performance measures are statistically significant at 1% save for those between

¹⁸ Total remuneration is defined as a sum of salary, equity linked compensation, pension contributions, and other payments, which include medical care, value of car, fuel, club membership, etc..

¹⁹ Given the data at hand it is impossible to conduct the formal Granger causality test.

ROCE and the lagged Dispersion_{total-pay} which is statistically significant at 10%. None of the correlations calculated for the lagged performance measures and Dispersion are significant. This suggests that if there is causality, it is more likely to be from Dispersion to performance than the other way round, and this applies to both measure of Dispersion. For this reason in all the regressions we use the first lag of the dispersion measures.

Table 1 shows that, as expected, Dispersion_{total-pay} is slightly larger than Dispersion_{salary}. Its standard deviation is also higher. Moreover, larger Dispersion is observed in companies with overseas executives than in companies with all British nationality executives.

Nationality of Executives

Testing for the dispersion-performance relationship on boards with American nationality executives is one of the objectives of the paper. Therefore it is important to properly control for the presence of American and overseas executives to ensure that the effects observed are not diluted or enforced by the presence of other than U.S. nationality executives. Out of 106 companies with U.S. nationality executives 37 companies have a U.S. nationality CEO and 80 companies have U.S. nationality non-CEO executives. In the case of the 142 companies which have non-U.S. overseas executives 70 companies have non-U.S. overseas CEOs. These non-U.S. nationality CEOs are spread across 22 nationalities with no nationality coming close to the U.S. figures. Canadians and Irish are the next most numerous (eight of each), followed by South Africans and French (seven of each). This means that although the group of companies with U.S. CEOs should be numerous enough to dilute individual effects, the other nationalities are not numerous enough to allow for a meaningful testing of their potential impact. Therefore, while we explicitly separate the U.S. nationality executives, all the other nationalities are pooled together in one group. We also separate CEOs from the other executive board members to gain some understanding of the significance of having American nationality executives at the leader level. This separation is adopted to gain further insight into the importance of CEOs for the dispersion-performance relationship, given that CEOs are typically dominant figures on boards of American companies.

Therefore, the following five variables, which are interacted with both measures of dispersion, are calculated: US-execs% is the ratio of American nationality executives

to the total number of executives; US-board% is the ratio of the number of American nationality executives other than a CEO to the total number of executives minus a CEO; Non-US/UKboard% is the ratio of the number of overseas non-American nationality executives other than CEO to the total number of executives minus the CEO; US-CEO is a dummy equal to one if a CEO is of American nationality and zero otherwise, and, finally, Non-US/UK-CEO is a dummy equal to one if a CEO is neither British nor American, and zero otherwise.

3.3. Control Variables

Because we are interested in isolating the impact of remuneration dispersion on firm performance we control for several firm and board characteristics which are well documented in the literature to be associated with firm performance.

Firm characteristics

Following the existing literature we control for firm size, Firm-size, which is measured by the natural logarithm of net revenues (sales) expressed in millions of pounds sterling.²⁰ Leverage, defined as the ratio of total debt to total assets, controls for a firm's financial liquidity. High leverage is typically perceived as a sign of financial distress so a negative relationship between performance and leverage is expected. Given that one of our dependent variables is ROCE, it may be particularly important to control for non-physical capital, i.e., intangible assets. To proxy for intangible assets, we calculate a ratio of the value of assets not having physical existence (DataStream code 02649) to total assets.²¹ It is further denoted as Intangibles. We also control for insider ownership, Insiders, defined as the fraction of outstanding shares held by insiders (i.e., directors, officers, immediate families, any other corporate individuals).²² As agency problems arise from the separation of management and control, the higher the share-

²⁰ We have also used the number of employees and its lag to proxy for firm size. Given that it did not have any impact on the main results we do not present these regressions to save space.

²¹ According to the DataStream definition these non-physical assets include goodwill/cost of excess of net assets purchased, patents, copyrights, trademarks, formulae, etc. We do not use R&D because DataStream provides the R&D data for about a quarter of our sample only.

²² It is also common to control for institutional ownership. However, in our sample institutional ownership and insider ownership are highly correlated. It was not econometrically sound to use them in one regression specification. We use the insider ownership as it was deliver better fit.

ownership of the executives is, then the higher their alignment with shareholders can be expected, therefore a positive sign for Insiders should be expected (e.g., Palia and Lichtenberg, 1999; Singh and Davidson, 2003).

Table 1 shows that the All-British-Boards companies are on average slightly smaller than the companies with overseas executives. The mean size of the companies without overseas executives is 11.89 (i.e., 146,093mln pound sterling), while those with the foreign executives is 13.36 (i.e., 634,124mln pound sterling). The insider ownership is slightly higher on the All-British Boards firms, 26.6%, than on the Foreigners-on-Boards firms, 20.9%. However the average leverages of both samples are comparable (about 22-23%), and so are the ratios of intangible assets to total assets (about 19%).

It could be the case that what we attribute to the presence of American executives, in fact, reflects more general ‘culture’ of the given company. That is, there are companies that have, for example, more hierarchical board architecture than other companies, and these more hierarchical companies attract American executives. If this is true that historically U.K. boards are less hierarchical, and only some companies have adopted higher hierarchies (and this is not the presence of American executives that causes it), it is reasonable to assume that it could happen via exposure to more hierarchical structures, and, in our case, via the exposure to the U.S. corporate culture and practices. This exposure might happen in many ways, but it is reasonable to suppose that having extensive business contacts with the U.S. market could create an appropriate base for adopting American ways of doing business. Therefore, to check the robustness of our findings we test whether controlling for firm’s exposure to the U.S. market impacts on the results. For this purpose we construct two dummies: US-listed, which is equal to one if a company was cross-listed on one of the US stock exchanges in a given reporting year, and US-sales, which is equal to one if a company had sales in the USA and zero otherwise in a given reporting year.²³ These two dummies are also interacted with the dispersion measures.

Board and CEO characteristics

Several board and CEO characteristics found to be related to performance are also controlled for. The size of a board, Board-size, is defined as the total number of executive (including CEO) and non-executive directors sitting on a board. The

²³ We do not control for the proportion of sales in the U.S. to total sales because this information was available for a small fraction of the companies only.

relationship between Board-size and the performance is not clear, although it can be expected to be negative rather than positive. This is because, on one hand, bigger boards, having more man-power and expertise, may be able to draw on a variety of perspectives on corporate strategy (Forbes and Milliken, 1999), but on the other hand, they may be more difficult to coordinate and may experience problems with communication and organization resulting in low cohesion (Eisenberg et al., 1998; Forbes and Milliken, 1999). Table 1 shows that the average board size of the Foreigners-on-Boards sample is 9.7 executives, while it is 7.8 for the All-British-Boards.

NED% is the ratio of the number of non-executive directors to Board-size. Although, the general expectation is that the independent directors are an important part of an effective corporate board (Fama and Jensen, 1983; Cadbury Report, 1992), the evidence that they are sufficient to positively impact on board practices is mixed (e.g., Franks et al., 2001; Lee et al., 2008). The boards of companies with overseas executives have on average nearly 53% of NEDs, while the companies without the overseas executives have only 47.6% of NEDs.

CEO-tenure is defined as the natural logarithm of the number of years and months a CEO has been in a current post plus one. It can be expected that good managers stay longer in their post, therefore a positive relationship between tenure and the performance is expected. CEOs of the All-British-Boards companies on average stay in jobs 4.3 years, while those in Foreigners-on-Boards firms for only 3.58 years.

We also define a variable CEO-on-boards which is equal to the number of boards of listed companies (outside his/her own company) a CEO sits on in a given reporting year. Fich and Shivdasani (2006) show that being busy outside his/her own firm damages CEO in his/her duties, therefore a negative coefficient on the variable is expected. It seems that, on average, the All-British-Boards companies have less busy CEOs than companies with overseas executives. The corresponding averages are 1.24 and 1.53.

Finally, we define a dummy CEO-Chair equal to one if a CEO is also a Chairman of the board and zero otherwise. Because the separation of the positions of board chairman and of CEO are recommended for British boards as a sign of good corporate governance practice (Cadbury Report 1992, Higgs 2003), being a chair and CEO at the same time may be perceived as an excessive concentration of power and expected to be associated with bad firm performance. However, given that British boards seem reluctant to allow

the CEO-Chair duality, it may be that the fact that a given CEO is allowed to be the Chairman may indicate that he/she is particularly good. If this is the case, then a positive coefficient for CEO-Chair could be expected. In the whole sample there are 70 companies which at some point have the same person being a Chair and CEO. 56 of these are in the All-British-Boards sample.

In addition to the above defined variables we use year and industry dummies. The industry dummies are defined using the BoardEx industry specification. There are 33 industries in the sample.

4. Regression analysis

The data at hand takes the form of an unbalanced panel with characteristics common for corporate governance studies. That is, several board and firm characteristics used as the explanatory variables are not independent over time (e.g., board size does not change randomly). Moreover, the cross sections of the panel are not independent (e.g., stock market performance can have ‘swings’). In addition, it is also typical for data of this type that there are substantial differences across companies but similarities within groups of companies (e.g., within sectors). Therefore, to ensure that the estimated coefficients and their standard errors are correct a panel regression estimation technique which corrects standard errors for autocorrelation, contemporaneous cross-sectional correlation and heteroskedasticity is needed. We adopt the panel-corrected standard errors estimation method (PCSE) developed by Beck and Katz (1995). The PCSE is shown (Hoechle, 2007) to produce more robust standard errors than the commonly used feasible generalized least-squares method proposed by Parks (1967).²⁴

We start the analysis from regressing the performance (ROCE or Returns) on Dispersion (Dispersion_{salary} or Dispersion_{total-pay}), controls, and the year and sector dummies. The controls are Firm-size, Leverage, Intangibles, Insiders, Board-size, NED%, CEO-tenure, CEO-chair, and CEO-on-boards. The results are presented in

²⁴ Test statistics strongly show that autocorrelation and heteroskedasticity are present. We cannot formally test for cross-sectional serial correlation because the panel is unbalanced and has many cross-sections (STATA does not cope with the calculations). However, panel fixed effect estimations corrected for heteroskedasticity and autocorrelation (random effects were rejected by the Hausman test) showed coefficients different from those estimated with PCSE, which indicates that there may be biased due to cross-section correlations not accounted for.

Table 2 Panel A. The columns' headings indicate which dependent variable (ROCE or Returns) and which dispersion measure ($\text{Dispersion}_{\text{salary}}$ or $\text{Dispersion}_{\text{total-pay}}$) are used. Each set of the regressions is supplemented with the Wald-chi and the R-squared statistics, as well as the number of observations.

The coefficients estimated for the control variables show that, consistent with our expectations, Leverage is associated with poor firm performance and CEO tenure with good firm performance. The significant and negative sign of the coefficients estimated for CEO-on-boards suggests that the more a CEO is active outside his/her own company, the worse his/her own company's financial performance, although this result does not hold for the regressions using Returns as the dependent variable. Intangibles also have statistical power in explaining firm performance. The association of Intangible with ROCE is quite strong (1% significant), while with Returns its statistical significance drops to 5% and 10%, but it is a bit surprising that the sign of the estimated coefficients is negative. There is some evidence (10% significant) that the ratio of shares owned by the management team, Insiders, negatively covaries with the stock market performance and much stronger evidence (5% and 1% significance) that the proportion of nonexecutive directors, NED%, is negatively associated with ROCE. The fact that the CEO is also a chair does not impact on financial performance, but it is positively related to stock market performance (1% significance).

***** insert Table 2 *****

Table 2 Panel A clearly shows that Dispersion negatively covaries with performance. The results are stronger for $\text{Dispersion}_{\text{salary}}$ than for $\text{Dispersion}_{\text{total-pay}}$. The coefficients estimated for $\text{Dispersion}_{\text{salary}}$ are bigger, in absolute terms, and more significant than coefficients estimated for $\text{Dispersion}_{\text{total-pay}}$. The impact of negative Dispersion is also material. Looking at $\text{Dispersion}_{\text{salary}}$, its impact on ROCE is -0.175 and on Returns is -0.032. This means that moving from zero $\text{Dispersion}_{\text{salary}}$ to its mean value 0.154 reduces ROCE by 2.7% and shareholder returns by 0.5% on annual basis. Given that the average ROCE is 6.1% and the average shareholder return is -0.1% the decline is economically significant. $\text{Dispersion}_{\text{total-pay}}$ has a similar negative (marginal) impact on shareholder returns (-0.49%).

These results are further strengthened when the regressions are estimated on the sub-sample of 546 companies with British nationality executives only (Table 2 Panel B). The coefficients estimated for Dispersion are bigger and more statistically significant than those obtained for the whole sample. This strongly supports our hypothesis that in contrast with the American studies British boards are characterized by the negative dispersion-performance relationship. As in the case of when all companies are used in the estimations, it is also now that the impact of Dispersion is economically significant. Moving from zero Dispersion_{salary} to its mean (0.152) reduces ROCE by 4.4% and Returns by 0.97%. This is a material reduction given that the mean ROCE is 5.5% and the mean of Returns is -0.9%. Similar calculations show that Dispersion_{total-pay} reduces ROCE by 2.8% and Returns by 0.74%.

The coefficients estimated for the controls are mostly in line with those estimated for the whole sample, although, there are a few differences. For instance, in the All-British-Boards sample the coefficients estimated for Board-size are statistically significant and negative in the ROCE regressions, the significance of the coefficients estimated for CEO-chair drops to 10% and 5%, and those estimated for CEO-on-boards lose their statistical significance. Also Leverage loses its statistical significance in explaining Returns. The significance of Intangibles drops to 10% in the regressions using Returns as the dependent variables, and disappear in the ROCE regressions.

Given that the removal of the companies that have overseas executives strengthens the negative association of the remuneration dispersion with the firm performance, we run the regressions on the sample of 217 companies of the Foreigners-on-Boards sample. In addition, following from our hypothesis that American nationality executives may be associated with the positive dispersion-performance relationship we add the interactive term of Dispersion and the proportion of American executives, US-execs%, to the basic regression specification. The results are shown in Table 3.

***** insert Table 3 *****

Table 3 shows that the coefficients estimated for the control variables have similar signs and significance to those estimated for the whole and the All-British-Boards samples (Table 2) safe for the coefficients estimated for NED%. In the Foreigners-on-

Boards sample there is some evidence (mostly only 10% significant) that the proportion of nonexecutive directors positively covaries with the stock market performance.

The biggest difference, however, is in the coefficients estimated for Dispersion. In contrast with the previous results the coefficients estimated for the Dispersion measures are statistically insignificant. Controlling for the proportion of American executives brings the significance back through the interactive term in the ROCE regressions, but this time the coefficient is positive (Table 3 Panel B). This is an indication of the potential support for our hypothesis that American executives are associated with the positive dispersion-performance relationship, but more careful analysis is needed. This is because some boards that have American executives also have other nationality executives, so the effect we observe may be cumulative rather than American driven. Moreover, it is possible that the impact of non-CEO executives and CEOs themselves has a different magnitude. For instance, let us imagine a situation that there is only one American nationality executive. The impact of this executive on how a company is run and performs may be much stronger if this person is a CEO than if he/she is one of many non-CEO executives. Therefore, to gain a better insight into the dispersion-performance relationship the rest of the analysis is done separately for non-CEO executives and CEOs. We start from the analysis of non-CEO executives (Table 4). The results obtained for the analysis of the impact of CEOs are presented in Tables 5 and 6.

4.1. American nationality non-CEO executives

As mentioned above it may be important to separate the impact of American and non-American board members. To do so, we return to the whole sample and remove from it all the boards that have both American and non-American overseas non-CEO executive members. There are 20 companies in this category. Using this smaller sample we run the basic regression to which two interactive terms are added: (i) Dispersion times USboard%, and (ii) Dispersion times Non-US/UKboard%. These interactive terms allow to depict whether the presence of the American and of the non-American overseas executives affect the sign and significance of the Dispersion coefficient. The results of these regressions are presented in Table 4 Panel A.

***** insert Table 4 *****

The next step is to recognize that although the boards are separated into those with American and those with non-American overseas non-CEO executives, there are still cases that American CEOs lead companies with non-American overseas boards and non-American overseas CEOs head boards with American executives on. Therefore, to avoid such situations we further reduce the sample by the 10 companies in which there are US-CEOs and non-U.S. overseas executives, or there are non-U.S. overseas CEOs with American executive board members. Using this reduced sample we run regressions with Dispersion x USboard%, and Dispersion x Non-US/UKboard% added to the basic regression specification. The results are presented in Table 4 Panel B.

Restricting the sample preserves the results. The coefficients estimated for Dispersion are negative and significant at 1% in the Returns regressions and 5% in the ROCE regressions for Dispersion_{salary}. Also consistent with the results presented in Table 3 the coefficients estimated for Dispersion x USboard% are statistically significantly different from zero and positive for the ROCE regressions. Also, as with the previous results, no effect is depicted for the Returns regressions.

To test whether the effect we observe is driven by companies having exposure to the American business culture we run a series of regressions which control for the impact of listing in the U.S. and having sales in the U.S. To do so the interactive terms, Dispersion x US-listing and Dispersion x US-sales are added to every regression specification. Given that the results obtained for these regressions are practically identical, to save space only the regressions equivalent to those in Table 4 Panel B are presented. Table 4 Panel C shows that controlling for the exposure to the American business culture does not affect the results. Neither the sign nor the significance of the coefficients estimated for Dispersion change. Similarly, the sign of the coefficients estimated for Dispersion x USboard% remain positive and statistically significant in the ROCE regressions. Also as previously all the coefficients estimated for Dispersion x Non-US/UKboard% remain statistically insignificant.

The effect of the presence of American non-CEO executives on ROCE is also economically significant. Moving from a position of having no American executives to a situation where there are 35.6% of American non-CEO executives sitting on a board (35.6% is the average number of American non-CEO executives in companies with

American non-CEO executives) increases ROCE by 3.2% ($=0.577 \times 0.154 \times 0.356$), where the effect of $\text{Dispersion}_{\text{salary}}$ is -3.1% ($= -0.201 \times 0.154$) leaving the net effect of 0.1%. In other words, if American executives consist of, at least, 30% of the executive board the dispersion-performance relationship becomes positive.

The coefficient of $\text{Dispersion}_{\text{total-pay}}$ in the ROCE regression is not significant, although still negative. However, the coefficient estimated for $\text{Dispersion}_{\text{total-pay}} \times \text{USboard\%}$ is positive and statistical significant at 5%. The marginal effect is 2.4%.

4.2. American nationality CEOs

The last two tables, Tables 5 and 6, report the impact of CEOs on the dispersion-performance relationship. Table 5 shows the results for when the significance of American nationality CEOs is investigated, and Table 6 when the significance of non-American overseas CEOs is analyzed. The two groups are studied separately because companies with different board characteristics have to be removed to allow separation of US-CEO and non-US/UK-CEO effects.

Table 5 starts from showing the results for the whole sample when the interactive term $\text{Dispersion} \times \text{US-CEO}$ is added to the basic regression specification (Panel A). We start from the whole sample to have a base for a direct comparison with the regressions testing the impact of non-US overseas CEOs (Table 6 Panel A). The next four columns (Panel B) show the results of the same specification when all boards which have an American CEO and overseas non-CEO executives are removed. There are 29 such boards leaving only 8 boards with an American CEO and all British non-CEO executives. This is a small sample, but if there is any effect, it cannot be attributed to the other overseas executives. Finally, the last four columns show the results when the interactions of Dispersion with US-listed and US-sales are added to the regression specification.

***** insert Table 5 *****

As previously, the coefficients estimated for Dispersion are negative and significant at 1% for the Returns regressions and 10% for the ROCE regressions using $\text{Dispersion}_{\text{salary}}$. Interestingly, all the coefficients estimated for $\text{Dispersion} \times \text{US-CEO}$

are positive and statistically significant at 1% in the Returns regressions. The interactive term coefficients are also bigger than coefficients estimated for Dispersion indicating that companies with American CEOs are characterized by a positive dispersion-performance relationship.

As in the regressions presented in Table 4 Panel C nearly all the coefficients estimated for the interaction of Dispersion with US-listed and US-sales are statistically insignificant. Only one out of eight coefficients estimated for the interactive terms is statistically significant at 10%.

***** insert Table 6 *****

Finally, Table 6 presents the results analogous to those presented in Table 5 but for the non-US overseas CEOs. The first four columns show the results obtained for the whole sample and the last eight ones for the sample for which all boards with a non-US overseas CEO and at least one overseas non-CEO executive are removed. There are 33 such cases leaving 37 non-US foreign CEOs running boards with only British nationality executives. These regressions should be treated more as a test of robustness of the Dispersion coefficients than tests of the sign and significance of the Dispersion x non-US/UK-CEO interaction. Given that there are many nationalities mixed up together in non-US/UK-CEO, it is hard to predict what the cumulative effect of these nationalities should be. However, it should be expected that whatever cutting of the sample is done, the coefficients estimated for Dispersion remain negative and significant.

As in the previous regression specifications, also this time the Dispersion coefficients are negative and highly significant for the Returns regressions. Also the coefficients estimated for Dispersion_{salary} in the ROCE regressions remain statistically significant at 10%. However, this time all the coefficients, but two, estimated for the Dispersion x non-US/UK-CEO interactive terms are statistically insignificant. Moreover, there is only weak evidence (10%) that having sales in the U.S. is associated with the reduction of the negative dispersion-performance relationship.

In the light of these results we conclude that, consistent with our expectations, the presence of American executives is associated with a positive impact on the dispersion-performance relationship. It appears that the positive impact characterizes both CEOs and non-CEO executives. Controlling for companies being listed in the U.S. and having

sales in the U.S. preserves the main results, i.e., Dispersion is negatively associated with firm performance. This means that having business contacts with the U.S. does not explain the positive association of the presence of American nationality executives with firm performance, although it may be further enhancing it.

4.3. Is it really Americans that matter?

We have just shown that cross-listing and having sales in the U.S. does not affect the impact of Dispersion on ROCE and Returns. Still, one could ask whether this is American nationality executives who affect how boards respond to the size of Dispersion, or whether American nationality executives are simply attracted to companies with higher dispersion (dispersion might be one of many characteristics of firm specific business culture). From the perspective of this research it does not really matter which of these explanations is more likely to hold because for as long as British boards are associated with the negative dispersion-performance relationship, the results show that the findings on American data do not have a universal character and accounting for differences in perceptions of remuneration practices and structures at the executive board level may be more important than has been acknowledged.

However, the question of causality is interesting and it would be valuable to shed some light on the issue. There is not enough data to test for business culture characteristics of individual firms, and whether they change when particular individuals join or leave an executive board, so we look whether and how Dispersion changes when American nationality executives join a board. To do so we focus on companies which appoint an American nationality CEO and compare them against those companies which appoint a British nationality CEO. We single out CEOs since it can be expected that CEOs have more impact on boards and companies than individual non-CEO executives.

There are 41 American nationality CEOs in the sample, however, for only 20 of them there is data about remuneration before the CEO was appointed, and the previous CEO was not of American nationality. For each of these CEOs we calculate the change in $\text{Dispersion}_{\text{salary}}$ and the change in $\text{Dispersion}_{\text{total-pay}}$ as the differences between the corresponding Dispersions when an American nationality CEO is appointed and Dispersion a year before the appointment takes place (these are denoted

$\Delta\text{Dispersion}_{\text{salary}}$ and $\Delta\text{Dispersion}_{\text{total-pay}}$ respectively). To account for the fact that if changes occur they may not be instantaneous we also calculate the difference in Dispersions when the American nationality CEO is in job for over a year and the pre-appointment Dispersion. The sample size drops to 12 observations. The change in Dispersion is denoted $\Delta 2\text{Dispersion}$.

The All-British-Boards companies for which information about remuneration prior to appointing a new CEO is available are used as a benchmark. There are 211 companies in this group. The sample reduces to 123 companies when it is requested that the CEO stays in the job for the next year and remuneration information about this year is also available. Using these samples $\Delta\text{Dispersion}$ and $\Delta 2\text{Dispersion}$ for salary and total pay are calculated.

Table 7 provides the results of one-side t-tests for the sample means of the American and of the British CEOs, as well as for their differences. In spite of the small sample size the mean of $\Delta\text{Dispersion}_{\text{total-pay}}$ and $\Delta 2\text{Dispersion}_{\text{salary}}$ and $\Delta 2\text{Dispersion}_{\text{total-pay}}$ are statistically significantly greater than zero. The $\Delta 2\text{Dispersions}$ are statistically significantly greater than zero at 10%, which is still considerably high given that it is calculated on the sample of 12 observations.

***** insert Table 7 here *****

The corresponding statistics calculated for the sample of UK nationality CEOs are less consistent. There is a statistically significant increase in $\text{Dispersion}_{\text{total-pay}}$ but there is no statistical increase when Dispersion a year after the appointment is compared against Dispersion before the appointment. In fact, there seems to be a small decline in $\text{Dispersion}_{\text{salary}}$ (10% significant).

The comparison of the differences of the means shows statistically significantly smaller change in Dispersion in the sample of British CEOs than in the sample of American CEOs. The $\Delta 2\text{Dispersion}_{\text{salary}}$ just misses the 5% significance level.

To close the discussion, the levels of Dispersions before the appointments of new CEOs are compared. The last two rows of Table 7 show that there is no statistical difference between Dispersions calculated for the companies appointing British CEOs and the companies appointing American CEOs in years preceding the appointments.

These results suggest that there may be some changes in how companies remunerate boards when American CEOs are appointed in comparison with companies that remain 'British'. There also seems to be no statistical evidence that the American CEOs are appointed by companies with statistically large Dispersion as compared against companies which appoint British CEOs. Although more research is needed to understand what affects remuneration practices in companies, the evidence shown suggests that the presence of American CEOs may be a significant factor.

5. Conclusions

In this paper the impact of remuneration dispersion of executive boards on firm performance is investigated using a big sample of British companies. The relationship between pay dispersion and firm performance is studied to answer the question to what extent findings on American data hold for British boards. We provide several arguments why they might not. Consistent with our expectations we find that the dispersion-performance relationship has an opposite sign to that documented for boards of American firms. That is, big pay differences have a negative impact on performance. However, we also find that the dispersion-performance relationship is positive on those British boards which have American nationality CEOs. Also having 30% or more American nationality non-CEO executives is associated with the positive dispersion-performance relationship. These results are robust for controlling for various firm, board and CEO characteristics, including cross-listing on American exchanges and having sales in the U.S.

We also show that there is some evidence that indeed it may be the presence of American nationals that leads to the switch from the negative to the positive sign of the dispersion-performance relationship. The data are limited, but there is some evidence that remuneration dispersion changes more on boards that appointed an American CEO in comparison with those boards which appointed a British CEO.

This study contributes to the existing literature in several ways. It documents the complexity of the relationship between remuneration practices and firm performance at the executive board level. It shows that findings on American data may not have a universal character. The fact that British boards, which in the universe of corporate governance structures and regimes are commonly identified as close to the American

ones, are characterized by a dispersion-performance relationship opposite to the one documented on American data shows that care is needed in any generalization of the American findings. This paper also has implications for the research on benefits and costs of board diversity. It adds a new dimension to the complex task of finding optimal financial incentives to culturally diverse boards.

Acknowledgements

I would like to thank the participants of the Challenges of Corporate Governance Conference, Christian Wolff (the editor), the anonymous referee, as well as Tom Berglund, Paul Grout, Darius Palia, Oleksandr Talavera, Frank Windmeijer and David Winter for their useful comments and encouragement.

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Table 1. Descriptive statistics for the total sample of 781 companies (Panel A), for the All-British Boards sample of 564 companies (Panel B) and for the Foreigners-on-Boards sample of 217 companies (Panel C).

	Panel A				Panel B				Panel C			
	Mean	σ	Min	Max	Mean	σ	Min	Max	Mean	σ	Min	Max
Control variables												
Firm-size	12.27	2.119	3.09	18.99	11.892	1.986	3.09	17.67	13.36	2.123	5.503	18.99
Leverage	0.224	0.164	0.001	0.953	0.220	0.164	0.001	0.953	0.235	0.162	0.001	0.924
Intangibles	0.191	0.208	0	0.887	0.186	0.215	0	0.887	0.224	0.193	0	0.853
Insiders	0.254	0.216	0.00	0.980	0.266	0.217	0.00	0.94	0.209	0.208	0.001	0.979
Board-size	8.305	2.330	3	20	7.819	2.019	3	16	9.715	2.570	5	20
NED%	0.490	0.118	0.00	0.823	0.476	0.117	0	0.786	0.529	0.113	0.200	0.823
CEO-tenure	1.630	0.750	0	3.728	1.670	0.762	0	3.728	1.522	0.705	0	3.342
CEO-chair	0.056	0.234	0	1	0.064	0.248	0	1	0.037	0.189	0	1
CEO-on-boards	1.316	0.658	1	6	1.242	0.560	1	6	1.534	0.884	1	6
Independent variables												
Dispersion _{salary}	0.154	0.078	0	0.816	0.152	0.078	0	0.816	0.157	0.076	0	0.573
Dispersion _{total pay}	0.168	0.093	0	0.754	0.164	0.090	0	0.694	0.181	0.101	0.013	0.754
USexecs%	0.038	0.107	0	0.833					0.150	0.168	0	0.833
nonUS/UKexecs%	0.050	0.139	0	0.800					0.184	0.203	0	0.800
USboard%	0.038	0.106	0	0.833					0.142	0.200	0	1
nonUS/UKboard%	0.050	0.139	0	1					0.166	0.224	0	1
US-CEO	0.043	0.204	0	1					0.171	0.376	0	1
nonUS/UK-CEO	0.066	0.248	0	1					0.249	0.433	0	1
US-sales	0.120	0.325	0	1	0.070	0.254	0	1	0.264	0.441	0	1
US-listed	0.273	0.446	0	1	0.238	0.426	0	1	0.377	0.485	0	1
Dependent variables												
ROCE	0.062	0.212	-1.026	0.527	0.055	0.255	-1.026	0.527	0.782	0.188	-1.025	0.527
Returns	-0.001	0.046	-0.331	0.204	-0.001	0.046	-0.331	0.204	-0.001	0.045	-0.286	0.124

Table 2: Regression results with ROCE or Returns as the dependent variables testing the Dispersion-Performance relationship. Panel A shows the results for the basic regression specification using the whole sample; Panel B shows the results of the regressions for the All-British Boards sample. Dispersion refers to $\text{Dispersion}_{\text{salary}}$ or $\text{Dispersion}_{\text{total pay}}$ as indicated in the headings of the columns; p-values are shown in parenthesis. *p < 0.10, **p < 0.05, *** p < 0.01

	Panel A				Panel B			
	$\text{Dispersion}_{\text{salary}}$		$\text{Dispersion}_{\text{total-pay}}$		$\text{Dispersion}_{\text{salary}}$		$\text{Dispersion}_{\text{total-pay}}$	
	ROCE	Returns	ROCE	Returns	ROCE	Returns	ROCE	Returns
Firm-size	0.067*** (0.000)	0.001 (0.439)	0.067*** (0.000)	0.001 (0.401)	0.078*** (0.000)	0.000 (0.957)	0.078*** (0.000)	0.000 (0.693)
Leverage	-0.290*** (0.000)	-0.011** (0.041)	-0.297*** (0.000)	-0.010* (0.067)	-0.340*** (0.000)	-0.007 (0.302)	-0.334*** (0.000)	-0.008 (0.235)
Intangibles	-0.100** (0.024)	-0.012** (0.026)	-0.105** (0.016)	-0.012** (0.031)	-0.046 (0.411)	-0.012* (0.082)	-0.050 (0.377)	-0.012* (0.090)
Insiders	0.034 (0.285)	-0.009* (0.056)	0.038 (0.236)	-0.009* (0.053)	0.047 (0.227)	-0.006 (0.320)	0.052 (0.202)	-0.008 (0.244)
Board-size	-0.005 (0.203)	-0.000 (0.899)	-0.005 (0.263)	0.000 (0.967)	-0.008** (0.040)	0.000 (0.702)	-0.006* (0.076)	0.000 (0.816)
NED%	-0.152** (0.011)	0.010 (0.216)	-0.158*** (0.008)	0.010 (0.214)	-0.222*** (0.000)	-0.001 (0.932)	-0.231*** (0.000)	-0.002 (0.837)
CEO-tenure	0.035*** (0.000)	0.004*** (0.000)	0.036*** (0.000)	0.004*** (0.000)	0.035*** (0.000)	0.005*** (0.000)	0.035*** (0.000)	0.005*** (0.000)
CEO-chair	-0.008 (0.726)	0.009*** (0.008)	-0.011 (0.655)	0.009*** (0.005)	-0.013 (0.597)	0.008* (0.053)	-0.013 (0.589)	0.009** (0.037)
CEO-on-boards	-0.021*** (0.003)	-0.000 (0.632)	-0.020*** (0.004)	-0.001 (0.534)	-0.012 (0.174)	-0.000 (0.981)	-0.012 (0.141)	-0.000 (0.813)
Dispersion	-0.175* (0.065)	-0.032*** (0.006)	-0.076 (0.216)	-0.029*** (0.002)	-0.287** (0.014)	-0.060*** (0.000)	-0.167** (0.033)	-0.044*** (0.001)
Ch-2(45)	1287.8	1130.3	1295.7	1122.4	1040.7	832.8	1017.1	802.8
R-squared	0.314	0.323	0.311	0.323	0.370	0.340	0.367	0.335
Observations	2241	2221	2242	2222	1528	1511	1528	1511

Table 3: Regression results with ROCE or Returns as the dependent variables testing the Dispersion-Performance relationship on the sample of companies with overseas executives (Foreigners-on-Boards sample). Panel A shows the results for the basic regression specification; Panel B shows the results of the regressions testing the impact of the presence of American nationality executives on Dispersion-Performance relationship. Dispersion refers to Dispersion_{salary} or Dispersion_{total pay} as indicated in the headings of the columns; p-values are shown in parenthesis. *p < 0.10, **p < 0.05, *** p < 0.01

	Panel A				Panel B			
	Dispersion _{salary}		Dispersion _{total-pay}		Dispersion _{salary}		Dispersion _{total-pay}	
	ROCE	Returns	ROCE	Returns	ROCE	Returns	ROCE	Returns
Firm-size	0.043*** (0.000)	-0.000 (0.882)	0.043*** (0.000)	-0.000 (0.906)	0.042*** (0.000)	-0.000 (0.778)	0.043*** (0.000)	-0.000 (0.828)
Leverage	-0.197* (0.069)	-0.015 (0.144)	-0.204* (0.063)	-0.015 (0.144)	-0.233** (0.029)	-0.016 (0.131)	-0.218** (0.040)	-0.016 (0.126)
Intangibles	-0.112 (0.205)	-0.015* (0.050)	-0.102 (0.266)	-0.015* (0.058)	-0.123 (0.146)	-0.015* (0.055)	-0.108 (0.213)	-0.014* (0.069)
Insiders	0.038 (0.409)	-0.026*** (0.001)	0.037 (0.430)	-0.026*** (0.001)	0.040 (0.379)	-0.026*** (0.001)	0.045 (0.335)	-0.026*** (0.001)
Board-size	0.000 (0.972)	-0.001 (0.316)	0.001 (0.924)	-0.001 (0.264)	0.001 (0.845)	-0.001 (0.368)	0.001 (0.906)	-0.001 (0.288)
NED%	0.066 (0.552)	0.024* (0.066)	0.056 (0.635)	0.026* (0.052)	0.074 (0.501)	0.025* (0.063)	0.053 (0.646)	0.026** (0.048)
CEO-tenure	0.046*** (0.001)	0.003* (0.063)	0.045*** (0.001)	0.003* (0.069)	0.044*** (0.001)	0.003* (0.051)	0.046*** (0.001)	0.003* (0.059)
CEO-chair	0.025 (0.663)	0.013** (0.022)	0.029 (0.609)	0.012** (0.027)	0.009 (0.878)	0.012** (0.033)	0.020 (0.720)	0.012** (0.032)
CEO-on-boards	-0.018* (0.091)	0.001 (0.405)	-0.019* (0.061)	0.001 (0.423)	-0.021** (0.046)	0.001 (0.490)	-0.020* (0.053)	0.001 (0.465)
Dispersion	-0.137 (0.506)	0.019 (0.270)	0.041 (0.688)	0.005 (0.694)	-0.254 (0.277)	0.015 (0.400)	-0.061 (0.643)	0.002 (0.908)
Dispersion x US-execs%					1.044** (0.015)	0.035 (0.344)	0.575* (0.053)	0.024 (0.463)
Ch-2(45)	562.0	415.3	552.8	419.0	617.5	417.8	583.8	419.9
R-squared	0.253	0.351	0.254	0.350	0.263	0.352	0.259	0.351
Observations	757	757	757	757	756	756	756	756

Table 4. Regression results with ROCE or Returns as the dependent variables testing impact of an American nationality non-CEO executives (USboard%) and of non-American overseas nationality non-CEO executives (non-US/UKboard%) on the Dispersion-Performance relationship. Panel A shows the results for the sample without boards which have both American nationality non-CEO executives and non-American overseas nationality non-CEO executives; Panel B shows the results when also boards with American nationality CEOs and non-American overseas executives, as well as boards with non-American overseas CEOs and American non-CEO executives are removed; Panel C shows the estimates obtained for the sample used in Panel B with the regressions specifications expanded for the interactive terms of Dispersion x US-listed and Dispersion x US-sales. Dispersion refers to Dispersion_{salary} or Dispersion_{total-pay} as indicated in the headings of the columns; p-values are shown in parenthesis. *p < 0.10, **p < 0.05, ***p < 0.01

	Panel A				Panel B				Panel C			
	Dispersion _{salary}		Dispersion _{total-pay}		Dispersion _{salary}		Dispersion _{total-pay}		Dispersion _{salary}		Dispersion _{total-pay}	
	ROCE	Returns	ROCE	Returns	ROCE	Returns	ROCE	Returns	ROCE	Returns	ROCE	Returns
Firm-size	0.068*** (0.000)	0.001 (0.467)	0.068*** (0.000)	0.001 (0.437)	0.069*** (0.000)	0.000 (0.510)	0.069*** (0.000)	0.001 (0.459)	0.072*** (0.000)	0.001 (0.353)	0.071*** (0.000)	0.001 (0.395)
Leverage	-0.334*** (0.000)	-0.010* (0.073)	-0.340*** (0.000)	-0.009 (0.104)	-0.339*** (0.000)	-0.011* (0.061)	-0.345*** (0.000)	-0.010* (0.088)	-0.335*** (0.000)	-0.011* (0.051)	-0.334*** (0.000)	-0.010* (0.093)
Intangibles	-0.096** (0.032)	-0.013** (0.018)	-0.100** (0.024)	-0.013** (0.021)	-0.094** (0.042)	-0.013** (0.018)	-0.097** (0.033)	-0.013** (0.020)	-0.094** (0.041)	-0.014** (0.015)	-0.098** (0.035)	-0.013** (0.022)
Insiders	0.017 (0.554)	-0.009* (0.076)	0.017 (0.578)	-0.009* (0.069)	0.019 (0.519)	-0.009* (0.074)	0.019 (0.527)	-0.009* (0.068)	0.023 (0.458)	-0.009* (0.070)	0.025 (0.432)	-0.009* (0.064)
Board-size	-0.011*** (0.000)	0.000 (0.984)	-0.010*** (0.000)	0.000 (0.882)	-0.011*** (0.000)	0.000 (0.951)	-0.010*** (0.000)	0.000 (0.860)	-0.011*** (0.000)	0.000 (0.855)	-0.011*** (0.000)	0.000 (0.811)
NED%	-0.118** (0.040)	0.010 (0.227)	-0.125** (0.029)	0.010 (0.211)	-0.123** (0.032)	0.009 (0.264)	-0.131** (0.023)	0.009 (0.247)	-0.116** (0.037)	0.010 (0.197)	-0.118** (0.035)	0.010 (0.207)
CEO-tenure	0.036*** (0.000)	0.004*** (0.000)	0.036*** (0.000)	0.004*** (0.000)	0.036*** (0.000)	0.004*** (0.000)	0.036*** (0.000)	0.004*** (0.000)	0.035*** (0.000)	0.004*** (0.000)	0.034*** (0.000)	0.004*** (0.000)
CEO-chair	-0.002 (0.934)	0.009*** (0.008)	-0.005 (0.835)	0.009*** (0.006)	-0.002 (0.920)	0.009*** (0.008)	-0.005 (0.819)	0.009*** (0.006)	-0.001 (0.968)	0.010*** (0.005)	-0.002 (0.923)	0.009*** (0.006)
CEO-on-boards	-0.023*** (0.003)	-0.001 (0.348)	-0.020*** (0.007)	-0.001 (0.277)	-0.023*** (0.002)	-0.001 (0.452)	-0.021*** (0.006)	-0.001 (0.397)	-0.022*** (0.005)	-0.001 (0.405)	-0.022*** (0.005)	-0.001 (0.323)
Dispersion	-0.193** (0.045)	-0.034*** (0.004)	-0.107* (0.097)	-0.030*** (0.002)	-0.194** (0.043)	-0.035*** (0.003)	-0.104 (0.108)	-0.030*** (0.002)	-0.201** (0.043)	-0.029** (0.011)	-0.103 (0.130)	-0.030*** (0.003)
Dispersion x USboard%	0.499* (0.057)	-0.014 (0.670)	0.368** (0.024)	-0.019 (0.370)	0.528* (0.059)	-0.019 (0.576)	0.407** (0.032)	-0.030 (0.152)	0.577** (0.038)	-0.015 (0.640)	0.395** (0.042)	-0.027 (0.231)
Dispersion x Non-US/UK board%	0.122 (0.659)	0.032 (0.307)	0.241 (0.244)	0.032 (0.260)	0.152 (0.596)	0.018 (0.562)	0.313 (0.147)	0.020 (0.486)	0.168 (0.559)	0.018 (0.579)	0.354 (0.125)	0.022 (0.444)
Dispersion x US-listed									-0.408 (0.162)	-0.038 (0.125)	-0.319* (0.090)	-0.019 (0.260)
Dispersion x US-sales									0.228* (0.061)	0.017 (0.195)	0.167 (0.112)	0.016 (0.151)
Ch-2(45)	1244.7	1109.2	1232.3	1104.6	1231.1	1100.9	1230.8	1098.1	1167.4	1108.4	1113.0	1109.0
R-squared	0.331	0.323	0.324	0.323	0.331	0.324	0.325	0.324	0.334	0.326	0.321	0.325
Observations	2195	2175	2196	2176	2175	2155	2176	2156	2175	2155	2176	2156

Table 5. Regression results with ROCE or Returns as the dependent variables testing impact of an American nationality CEO (US-CEO) on the Dispersion-Performance relationship. Panel A shows results for the whole sample; Panel B shows results when US-CEO head boards consisting of British nationality executives only; Panel C shows the estimates obtained for the sample used in Panel B with the regressions specifications expanded for the interactive terms of Dispersion x US-listed and Dispersion x US-sales. Dispersion refers to Dispersion_{salary} or Dispersion_{total pay} as indicated in the headings of the columns; p-values are shown in parenthesis. *p < 0.10, **p < 0.05, *** p < 0.01

	Panel A				Panel B				Panel C			
	Dispersion _{salary}		Dispersion _{total pay}		Dispersion _{salary}		Dispersion _{total pay}		Dispersion _{salary}		Dispersion _{total pay}	
	ROCE	Returns	ROCE	Returns	ROCE	Returns	ROCE	Returns	ROCE	Returns	ROCE	Returns
Firm-size	0.067*** (0.000)	0.000 (0.719)	0.067*** (0.000)	0.000 (0.609)	0.068*** (0.000)	0.000 (0.682)	0.068*** (0.000)	0.000 (0.536)	0.071*** (0.000)	0.001 (0.440)	0.070*** (0.000)	0.001 (0.448)
Leverage	-0.290*** (0.000)	-0.012** (0.036)	-0.297*** (0.000)	-0.011* (0.057)	-0.291*** (0.000)	-0.011* (0.060)	-0.294*** (0.000)	-0.010* (0.087)	-0.287*** (0.000)	-0.011** (0.046)	-0.286*** (0.000)	-0.009* (0.093)
Intangibles	-0.099** (0.028)	-0.012** (0.030)	-0.105** (0.016)	-0.011** (0.043)	-0.093** (0.042)	-0.011** (0.043)	-0.098** (0.025)	-0.010* (0.056)	-0.092** (0.042)	-0.012** (0.032)	-0.098** (0.025)	-0.010* (0.057)
Insiders	0.035 (0.271)	-0.010** (0.044)	0.039 (0.234)	-0.010** (0.042)	0.039 (0.249)	-0.009* (0.082)	0.042 (0.225)	-0.009* (0.081)	0.042 (0.211)	-0.009* (0.076)	0.048 (0.165)	-0.009* (0.080)
Board-size	-0.005 (0.206)	-0.000 (1.000)	-0.005 (0.268)	0.000 (0.902)	-0.005 (0.220)	-0.000 (0.839)	-0.004 (0.303)	-0.000 (0.963)	-0.005 (0.212)	-0.000 (0.996)	-0.005 (0.251)	0.000 (0.989)
NED%	-0.154*** (0.010)	0.009 (0.262)	-0.157*** (0.008)	0.009 (0.241)	-0.161*** (0.006)	0.009 (0.275)	-0.169*** (0.005)	0.009 (0.257)	-0.154*** (0.008)	0.010 (0.209)	-0.160*** (0.006)	0.010 (0.208)
CEO-tenure	0.036*** (0.000)	0.004*** (0.000)	0.036*** (0.000)	0.004*** (0.000)	0.036*** (0.000)	0.004*** (0.000)	0.037*** (0.000)	0.004*** (0.000)	0.035*** (0.000)	0.004*** (0.000)	0.036*** (0.000)	0.004*** (0.000)
CEO-chair	-0.010 (0.689)	0.010*** (0.008)	-0.011 (0.657)	0.010*** (0.005)	-0.009 (0.689)	0.009** (0.011)	-0.011 (0.657)	0.009*** (0.006)	-0.009 (0.714)	0.009** (0.013)	-0.011 (0.651)	0.009*** (0.006)
CEO-on-boards	-0.021*** (0.003)	-0.000 (0.863)	-0.020*** (0.004)	-0.000 (0.711)	-0.023*** (0.001)	0.001 (0.550)	-0.022*** (0.002)	0.000 (0.796)	-0.023*** (0.002)	0.000 (0.624)	-0.024*** (0.001)	0.000 (0.959)
Dispersion	-0.173* (0.071)	-0.035*** (0.002)	-0.069 (0.280)	-0.032*** (0.001)	-0.174* (0.070)	-0.037*** (0.002)	-0.060 (0.350)	-0.034*** (0.000)	-0.187* (0.057)	-0.033*** (0.004)	-0.070 (0.308)	-0.033*** (0.001)
Dispersion x US-CEO	-0.038 (0.763)	0.057*** (0.000)	-0.081 (0.353)	0.037*** (0.005)	-0.111 (0.403)	0.068*** (0.001)	-0.066 (0.444)	0.039*** (0.010)	-0.047 (0.733)	0.068*** (0.001)	-0.089 (0.284)	0.037** (0.018)
Dispersion x US-listed									-0.366 (0.171)	-0.036 (0.101)	-0.259 (0.126)	-0.017 (0.270)
Dispersion x US-sales									0.227* (0.064)	0.006 (0.630)	0.133 (0.194)	0.013 (0.215)
Ch-2(45)	1277.5	1143.5	1288.7	1121.4	1240.8	1131.4	1242.5	1109.3	1229.8	1136.0	1223.5	1121.7
R-squared	0.314	0.326	0.311	0.324	0.315	0.327	0.310	0.325	0.318	0.329	0.311	0.326
Observations	2241	2221	2242	2222	2209	2189	2210	2190	2209	2189	2210	2190

Table 6. Regression results with ROCE or Returns as the dependent variables testing impact of non-American overseas nationality CEO (Nnon-US/UK-CEO) on the Dispersion-Performance relationship. Panel A shows results for the whole sample; Panel B shows results when Non-US/UK-CEO head boards consisting of British nationality executives only; Panel C shows the estimates obtained for the sample used in Panel B with the regressions specifications expanded for the interactive terms of Dispersion x US-listed and Dispersion x US-sales. Dispersion refers to Dispersion_{salary} or Dispersion_{total pay} as indicated in the headings of the columns; p-values are shown in parenthesis. *p < 0.10, **p < 0.05, *** p < 0.01

	Panel A				Panel B				Panel C			
	Dispersion _{salary}		Dispersion _{total pay}		Dispersion _{salary}		Dispersion _{total pay}		Dispersion _{salary}		Dispersion _{total pay}	
	ROCE	Returns	ROCE	Returns	ROCE	Returns	ROCE	Returns	ROCE	Returns	ROCE	Returns
Firm-size	0.067*** (0.000)	0.000 (0.486)	0.067*** (0.000)	0.001 (0.424)	0.066*** (0.000)	0.000 (0.558)	0.066*** (0.000)	0.000 (0.499)	0.069*** (0.000)	0.001 (0.380)	0.068*** (0.000)	0.001 (0.393)
Leverage	-0.288*** (0.000)	-0.011** (0.040)	-0.295*** (0.000)	-0.010* (0.065)	-0.294*** (0.000)	-0.013** (0.026)	-0.300*** (0.000)	-0.011** (0.044)	-0.296*** (0.000)	-0.013** (0.021)	-0.297*** (0.000)	-0.011** (0.048)
Intangibles	-0.104** (0.019)	-0.012** (0.023)	-0.107** (0.013)	-0.012** (0.029)	-0.107** (0.021)	-0.013** (0.017)	-0.111** (0.013)	-0.012** (0.023)	-0.103** (0.025)	-0.014** (0.015)	-0.110** (0.016)	-0.013** (0.025)
Insiders	0.032 (0.310)	-0.010* (0.051)	0.039 (0.224)	-0.010** (0.050)	0.029 (0.357)	-0.009* (0.075)	0.037 (0.272)	-0.009* (0.072)	0.038 (0.228)	-0.009* (0.067)	0.041 (0.215)	-0.009* (0.069)
Board-size	-0.006 (0.171)	-0.000 (0.807)	-0.005 (0.230)	-0.000 (0.918)	-0.005 (0.213)	0.000 (0.999)	-0.004 (0.307)	0.000 (0.909)	-0.005 (0.229)	0.000 (0.957)	-0.005 (0.271)	0.000 (0.878)
NED%	-0.156*** (0.009)	0.009 (0.268)	-0.164*** (0.005)	0.009 (0.252)	-0.164*** (0.007)	0.009 (0.279)	-0.166*** (0.006)	0.009 (0.254)	-0.152** (0.011)	0.010 (0.201)	-0.155*** (0.009)	0.010 (0.208)
CEO-tenure	0.036*** (0.000)	0.004*** (0.000)	0.036*** (0.000)	0.004*** (0.000)	0.037*** (0.000)	0.004*** (0.000)	0.037*** (0.000)	0.004*** (0.000)	0.035*** (0.000)	0.004*** (0.000)	0.036*** (0.000)	0.004*** (0.000)
CEO-chair	-0.008 (0.743)	0.009*** (0.008)	-0.013 (0.586)	0.009*** (0.006)	-0.011 (0.640)	0.009** (0.012)	-0.015 (0.553)	0.009*** (0.009)	-0.010 (0.685)	0.010*** (0.006)	-0.015 (0.562)	0.009*** (0.010)
CEO-on-boards	-0.018** (0.011)	-0.000 (0.675)	-0.018*** (0.010)	-0.001 (0.535)	-0.017** (0.021)	-0.000 (0.719)	-0.018** (0.018)	-0.001 (0.569)	-0.018** (0.019)	-0.000 (0.708)	-0.019** (0.012)	-0.001 (0.553)
Dispersion	-0.184* (0.058)	-0.034*** (0.003)	-0.088 (0.166)	-0.031*** (0.001)	-0.177* (0.073)	-0.035*** (0.004)	-0.088 (0.172)	-0.032*** (0.001)	-0.190* (0.058)	-0.029** (0.012)	-0.084 (0.225)	-0.032*** (0.002)
Dispersion x nonUS/UK-CEO	0.123 (0.325)	0.029** (0.043)	0.103 (0.310)	0.021* (0.074)	0.097 (0.593)	0.026 (0.159)	-0.031 (0.834)	0.014 (0.359)	0.060 (0.740)	0.025 (0.154)	-0.046 (0.755)	0.015 (0.301)
Dispersion x US-listed									-0.405 (0.146)	-0.038 (0.128)	-0.328* (0.062)	-0.023 (0.186)
Dispersion x US-sales									0.216* (0.082)	0.017 (0.176)	0.128 (0.230)	0.018* (0.097)
Ch-2(45)	1300.5	1140.8	1322.5	1130.2	2246.3	14347.3	2266.9	14492.7	2160.0	14725.8	2228.5	14692.4
R-squared	0.313	0.324	0.311	0.324	0.312	0.323	0.311	0.323	0.316	0.326	0.312	0.325
Observations	2241	2221	2242	2222	2168	2147	2169	2148	2168	2147	2169	2148

Table 7. One-tailed tests for statistical significance of changes in Dispersion when new CEOs are appointed.

	Mean	T-statistic	Obs.
US nationality CEOs			
$\Delta \text{Dispersion}_{\text{salary}}$	-0.010	-0.543	20
$\Delta \text{Dispersion}_{\text{total-pay}}$	0.086**	1.999	20
$\Delta^2 \text{Dispersion}_{\text{salary}}$	0.038*	1.437	12
$\Delta^2 \text{Dispersion}_{\text{total-pay}}$	0.0498*	1.448	12
UK nationality CEOs			
$\Delta \text{Dispersion}_{\text{salary}}$	0.008	1.034	212
$\Delta \text{Dispersion}_{\text{total-pay}}$	0.015**	1.654	212
$\Delta^2 \text{Dispersion}_{\text{salary}}$	-0.010*	-1.370	123
$\Delta^2 \text{Dispersion}_{\text{total-pay}}$	0.005	0.737	123
Difference between UK nationality CEOs and US nationality CEOs			
$\Delta \text{Dispersion}_{\text{salary}}$	0.018	0.898	232
$\Delta \text{Dispersion}_{\text{total-pay}}$	-0.071 *	-1.606	232
$\Delta^2 \text{Dispersion}_{\text{salary}}$	-0.483*	-1.746	135
$\Delta^2 \text{Dispersion}_{\text{total-pay}}$	-0.044	-1.251	135
$\text{Dispersion}_{\text{salary}}$	0.011	0.957	232
$\text{Dispersion}_{\text{total-pay}}$	0.011	0.660	232